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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,905	07/07/2003	Sergio Camerlo	CISCO-6920	7936
49715	7590	05/04/2006	EXAMINER	
THELEN REID & PRIEST LLP			KIM, AHSHIK	
CISCO			ART UNIT	
P.O. BOX 640640			PAPER NUMBER	
SAN JOSE, CA 95164-0640			2876	

DATE MAILED: 05/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/614,905

Applicant(s)

CAMERLO ET AL.

Examiner

Ahshik Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 2/21/06 (RCE).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in  
5 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is  
eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)  
has been timely paid, the finality of the previous Office action has been withdrawn pursuant to  
37 CFR 1.114. Applicant's submission filed on February 21, 2006 has been entered.

### ***Amendment***

10 2. Receipt is acknowledged of the amendment filed on February 21, 2006. In the  
amendment claim 3 was canceled, and claims 1 and 36 were amended. Currently, claims 1, 2,  
and 4-36 remain in the examination.

### ***Claim Objections***

15 3. Claim 10 is objected to under 37 CFR 1.75(c), as being of improper dependent form for  
failing to further limit the subject matter of a previous claim. Applicant is required to cancel the  
claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the  
claim(s) in independent form.

20 Re claim 10, line 7: "the electrical connection comprises a solder ball" should be deleted  
in view of amended claim 1. Amended claim 1 reciting a plurality of solder balls, line 7 of claim  
10 is redundant.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

5 A person shall be entitled to a patent unless –

10 (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 2, 10, 15-21, 28, 35, and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Yang et al. (US 7,034,388, hereinafter “Yang”).

15 Re 1, 2, 10, 15-21, 28, 35, and 36, Yang discloses an electronic interconnection system 200 (see main figure or figure 11) comprising a printed circuit board 110/210 having a first surface having at least first contact pads – solder balls and a second contact pads; and a chip package 220 comprising a plurality of chips 230a and 230b wherein the chip 230 is connected to the package 220 via contact pads 250; a plurality of solder balls electrically connecting the  
20 package substrate with the printed circuit board 210; and a bridge lead 260 which connects the second contact pad of the PCB with the second contact pad of the package substrate (col. 6, lines 8-51). Although it may not be a part of the bridge lead, the package is further comprised of a heat sink 188 to dissipate the heat generated from the package (see abstract; col. 2, lines 17-38; col. 5, lines 8+).

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***Claim Rejections - 35 USC § 103***

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6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

5 (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the

10 claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c)

15 and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 4-7, 11, 12, 22-25, and 29-32 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Yang (US 7,034,388) in view of Eldridge et al. (US 6,336,269, hereinafter

"Eldridge).

The teachings of Yang have been discussed above. Yang, however, fails to specifically

20 teach or fairly suggest the bridge lead is one of flying lead style, edge wiping style, top wiping

style, or double wiping style.

Eldridge teaches an electronic component structure and various contact types used in manufacturing the electronic components (see abstract). The electronic components include

PCB (col. 4, lines 14+) and electronic packages (col. 4, lines 65+). Eldridge further discloses

25 various connecting means such as flying lead wire bonding (col. 6, lines 51+) and wiping contact

surface (col. 7, lines 2+).

In view of Eldridge's, disclosure, various bonding means such as flying lead style or wiping style are functionally equivalent means of connecting electronic components. What method is selected largely depends on the characteristics/functions of the component, production cost, availability of material, setup of manufacturing environment or purely the user's preference. Accordingly, it is the Examiner's view that choosing a particular method over the others would not affect the function of the electronic component.

9. Claims 8, 9, 13, 14, 26, 27, 33, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang (US 7,034,388) in view of Mertol (US 5,866,943, hereinafter "Mortel").

The teachings of Yang have been discussed above. Yang however, fails to specifically teach or fairly suggest the bridge lead is comprised of means for shielding electro-magnetic effects.

Mertol discloses an electronic package comprising an IC chip and ball grid array (see abstract). The packaged device includes electro-magnetic shielding. Some leads connected to the chip are connected to the heat sink to dissipate heat generated from the electronic package (col. 8, lines 23+).

In view of Mortels' disclosure, it would have been obvious to an ordinary skill in the art at the time the invention was made to employ notoriously well-known heat sink and electro-magnetic shielding to the teachings of Yang in order to ensure that the package's durability and desired functionalities are met. It is known that IC chips or packages generate heat, which needs to be transferred out to avoid overheating and a potential destruction of the chip. Various means of heat dissipating means are used in IC chip packages. Electro-magnetic interferences are often called "noise" which interferes with signal transmission from/to the chip to other devices.

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Means to reduce noise for the correct signal transmission is also readily used in chip manufacturing. These improvements would have been an obvious expedient, well within the ordinary skill in the art.

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### ***Response to Remarks***

10. Applicant's amended claims and remarks filed on February 21, 2006 have been carefully reviewed and considered. Although various methods (wire bonding; solder balls, bumps, bridge wires) are functionally equivalent means to connect electronic components, Applicant's argument that Degani precludes solder balls and solder bumps between the PCB/PWB and package substrate is persuasive.

10

### ***Conclusion***

I. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Park et al. (US 6,642,610); Nakajima (US 6,777,794); Shibue (US 6,803,646); McCormick (US 6,558,978) disclose semiconductor chip packages. Applicant is respectfully suggested to carefully review these references.

15

II. Any inquiry concerning this communication or earlier communications from the examiner should be directed to *Ahshik Kim* whose telephone number is (571)272-2393. The examiner can normally be reached between the hours of 6:00AM to 3:00PM Monday thru Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee, can be reached on (571)272-2398. The fax number directly to the Examiner is (571)273-2393. The fax phone number for this Group is (703)872-9306.

25

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [ahshik.kim@uspto.gov].

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*All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.*

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished application is available for Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions or access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.



Ahshik Kim  
Primary Examiner  
Art Unit 2876  
April 28, 2006